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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :  
KIMIYASU SATOH, ET AL. : EXAMINER: CHOWDHURY, A.  
SERIAL NO: 10/537,417 :  
FILED: JUNE 2, 2005 : GROUP ART UNIT: 2629  
FOR: INPUT DEVICE, PORTABLE :  
ELECTRONIC APPARATUS, REMOTE  
CONTROL DEVICE, AND  
PIEZOELECTRIC ACTUATOR  
DRIVING/CONTROLLING METHOD IN  
INPUT DEVICE

REPLY BRIEF

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

This is a reply to the Examiner's Answer dated November 26, 2008. This Reply Brief addresses the assertions made in the Examiner's Answer with respect to the original grounds of rejection.

With regard to the discussion of the independent claims on page 9 of the Examiner's Answer, Applicants disagree with the assertion that Shigeki teaches or suggests at least a control portion that controls a deformation mechanism portion to start driving the piezoelectric actuator to gradually deform the operation surface in one direction and then to deform the operation surface in a reverse direction.

The applied art of Shigeki is discussed in the background section of the present application. See, e.g., page 2, beginning at line 13. In Shigeki, it is merely the user's finger that pushes the surface in a first direction. Shigeki does not disclose a control portion that

controls said deformation mechanism to start driving the actuator in one direction and then in the reverse direction. There is no control portion that drives the piezoelectric actuator to gradually deform the operation surface as claimed.

The remaining applied art does not make up for the deficiencies of Shigeki. For example, Yoshitaka merely discusses a piezoelectric device that detects an input position. Divigalpitiya merely discusses the “relax” time of the particular materials involved without any particular description of driving the actuator.

Further, there is no motivation to modify Shigeki to include a control portion to control the deformation mechanism to start driving the actuator in one direction and then in the reverse direction. There is no advantage, and the Examiner has failed to offer one, that would be obtained by adding a piezoelectric actuator to Shigeki's device. That is, the Examiner asserts that it would have been obvious to combine the teachings to let the user feel a force sense as a feedback. However, Shigeki already discusses in paragraph [0040] that there is a “sense-of-force device” that is operated to resist a user's finger when pushed thereon. In particular, the sense-of-force device uses a bobbin coil to “put back to a user side” the user's finger after the user's finger is used to push on the surface. It is this “put-back” force that Shigeki already uses to provide a sense of feedback.

Accordingly, the independent claims are directed to driving the piezoelectric actuator to gradually deform the operation surface in one direction. Then the control portion drives the piezoelectric actuator to deform the operation surface in the reverse direction. As such, the control portion drives the deformation in two directions. An advantage provided by embodiments of the invention is that the touch panel may be deformed from being maximally curved in one direction and then maximally curved in the reverse direction without having power consumed by the piezoelectric actuator to become large. See the present specification at least at page 3, line 21 to page 4, line 7. With this efficient use of power, the user gets the

tactile sensation of a "click" by the slow movement of the operation surface in one direction followed by a rapid movement in the opposite direction.

Consequently, the claims are believed to define over the combination of Shigeki, Yoshitaka, and Divigalpitiya for at least the reasons discussed herein and in the Appeal Brief.


It is respectfully requested that the outstanding rejections be reversed.


Respectfully submitted,

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